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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/720,409	11/24/2003	Feng Chen	CS 03-039	5057

30402 7590 06/08/2006

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EXAMINER

SHAKERI, HADI

ART UNIT	PAPER NUMBER
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3723

DATE MAILED: 06/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

6

Office Action Summary	Application No.	Applicant(s)	
	10/720,409	CHEN ET AL.	
	Examiner	Art Unit	
	Hadi Shakeri	3723	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 37-61 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 37-61 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 November 2003 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on April 06, 2006 has been entered.

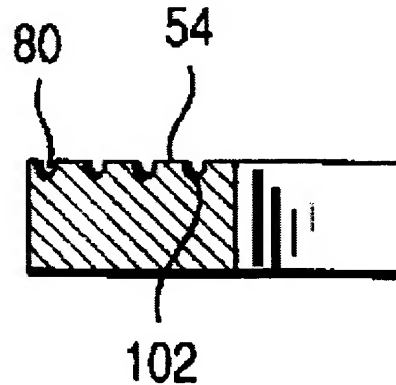
Claim Rejections - 35 USC § 102

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 37-42, 44, 46, 50-52, 54-57, 59 and 60 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Lai et al. (6,224,472).

Lai et al. discloses all of the limitations of claims 37, 50 and 55, i.e., retaining ring accommodating a wafer in a CMP comprising grooves extending from exterior of the ring towards the interior and having a semi-circular profile.

Regarding claims 38-42, 44, 46, 51, 52, 54, 56, 57, 59 and 60, Lai et al. meets the limitations, e.g., grooves not intersecting; no annular grooves; linear grooves; radius of about 6.5 mm; and rounded bottom corners.

***Claim Rejections - 35 USC § 103***

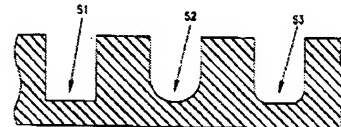
4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 43, 47, 53, 58 and 61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lai et al. in view of Taylor (6,869,335).

Lai et al. meets all of the limitations of the above claims, except for disclosing a rounded top corner (corners contacting the pad).

Taylor teaches that the corners of the grooves contacting the pad can be beveled or rounded. It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify the invention Lai et al. with rounded top corners as taught by Taylor to avoid excessive wear of the pad (Taylor 05:32-34).

6. Claims 45, and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lai et al. in view of Chen et al. (6,656,019).



Lai et al. meets all of the limitations of the above claims, except for disclosing a flat bottom and curved sidewall. Chen et al. teaches groove for delivering slurry of varying shapes. It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify the invention of Lai et al. with different shapes, i.e., S3 as taught by Chen et al. to avoid accumulation of debris (Chen et al. 10:08-13).

Regarding curved and slanted sidewalls, Lai et al. as modified by Chen et al., meets all the limitations, and suggests that the grooves may be of any shaped situated for the particular application, and it is also noted that, it has been held that changing shape, dependent on work-piece parameters, involves only routine skill in the art. *In re Stevens*, 101 US PQ 284(CCPA1954), and further it would have been obvious to one having ordinary skill in the art at the time the invention was made to make the sidewall curved to enhance prevention of accumulation, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

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7. Claim 48 rejected under 35 U.S.C. 103(a) as being unpatentable over Lai et al. in view of Chen et al. and Taylor.

Lai et al. as modified by Chen et al. and Taylor in sections 5 and 6 meets all of the limitations of claim 48, modifications to avoid excessive wear of the pad (Taylor 05:32-34) and debris accumulation.

Response to Arguments

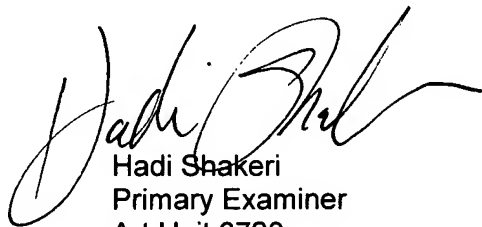
8. Applicant's arguments with respect to claims 1, 5, 7-10, 12-15, 19 and 21-36 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's arguments filed 08/30/05, with respect to rejections over Kajiwara et al. have been fully considered but they are moot in view of new grounds of rejections.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hadi Shakeri whose telephone number is 571-272-4495. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph J. Hail, III can be reached on 571-272-4485. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Hadi Shakeri
Primary Examiner
Art Unit 3723

November 3, 2005